

REMARKS

The claims have been amended to more clearly define the invention as disclosed in the written description. In particular, claim 11 has been cancelled, while the claims have been amended for clarity.

The Examiner has rejected claims 1-4 and 6-9 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,987,142 to Courneau et al. The Examiner has further rejected claims 10 and 11 under 35 U.S.C. 103(a) as being unpatentable over Courneau et al. In addition, the Examiner has rejected claim 5 under 35 U.S.C. 103(a) as being unpatentable over Courneau et al. in view of U.S. Patent 5,729,612 to Abe et al.

The Courneau et al. patent discloses a system of sound spatialization and method personalization for the implementation thereof, in which sound signals representative of a respective number of sources are processed such that they appear from particular positions to a user of the system.

The subject invention relates to a data representation apparatus which provides, to a user of the apparatus, an audio signal processed such that it seems to originate from different spatial positions depending on the value of a data signal. This is described in the specification on page 8, line 27 to page 9, line 5, in which the data representation apparatus may be arranged in an MP3 player where the data signal relates to the pace of the user. In one embodiment, a beep may be added to the music being reproduced, the spatial positioning of the beep being indicative to

the user of his/her pace, the position directly in front of the user indicating he/she is running at his/her desired pace.

As indicated in MPEP § 2131, it is well-founded that "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Further, "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The Examiner states:

"Courneau et al (hereafter Courneau) disclose a data representation apparatus for representing data (mono signal) by means of an audio signal, comprising an audio processing unit (1) arranged to deliver the audio signal with a characteristic dependent upon a positionless data variable (each coefficient for the filters has no unit, so it has particular position) capable of having a first value and a second value, characterized in that the data representation apparatus comprises a mapping unit (8), arranged to map the first value of the data variable to a first position in three-dimensional space, and the second value of the data variable to a second position in three-dimensional space; and the audio processing unit is arranged to change the characteristic, resulting in the audio signal appearing to originate from the first position for the data variable having the first value respectively the second position for the data variable having the second value, to a user listening to the audio signal (col. 2, lines 13-35)."

Applicants submit that the Examiner is mistaken. In particular, while Courneau et al. discloses mapping to spatial location, the items being mapped are individual signals relating to

separate sources. This is described in Courneau et al. at col. 2, lines 36-38, where it is described that different sound sources are connected to a bus 2, and at col. 3, lines 13-23, where it is described that a device 12 manages the sources to be spatialized, and a device 13 "computes the spatial coordinates of the point from which the sound given by this source should seem to come from."

Applicants therefore submit that Courneau et al. neither discloses nor suggests "a mapping unit for mapping the first value of the data signal to a first position in three-dimensional space, and the second value of the data signal to a second position in three-dimensional space, wherein the audio processing unit changes the characteristic of the audio signal, resulting in the audio signal appearing, to a user listening to the audio signal, to originate from the first position when the data signal has the first value, and from the second position when the data signal has the second value".

Claim 5 states "the mapping unit maps a collection of numerical values of the data signal to positions on a curvilinear locus in three-dimensional space".

The Abe et al. patent discloses a method and apparatus for measuring head-related transfer function.

The Examiner now states "Courneau fails to show the positions on a curvilinear locus in three-dimensional space. Courneau teaches using HRTF for implementing the localization of the sound source. Abel et al teach how the curvilinear locus in three-dimensional space related to the measured and derived HRTF

(col. 10, lines 50-67). Thus, it would have been obvious to one of ordinary skill in the art to with Courneau in view of Abel to have the HRTF defining the positions on a curvilinear locus in three-dimensional space."

Applicants submit that the Examiner's statement does not make any sense. "HRTF" means "head-related transfer function". While Courneau et al. uses HRTF in implementing the localization of the sound source, HRTF does not in itself determine the location. With regard to Abe et al., while HRTF is being measured, the disclosure in Abe et al. with respect to Fig. 3 showing an ellipse, is merely being done to illustrate that acoustic energy traveling along a reflected path from a source to a destination arrives at the destination lat a later point in time than acoustic energy traveling directly from the source to the destination (col. 10, lines 37-67). There is no disclosure or suggestion in Abe et al. or in Courneau et al. that "the mapping unit maps a collection of numerical values of the data signal to positions on a curvilinear locus in three-dimensional space".

Further, Applicants submit that Abe et al. does not supply that which is missing from Courneau et al., i.e., "a mapping unit for mapping the first value of the data signal to a first position in three-dimensional space, and the second value of the data signal to a second position in three-dimensional space, wherein the audio processing unit changes the characteristic of the audio signal, resulting in the audio signal appearing, to a user listening to the audio signal, to originate from the first position when the data

signal has the first value, and from the second position when the data signal has the second value".

In view of the above, Applicants believe that the subject invention, as claimed, is neither anticipated nor rendered obvious by the prior art, either individually or collectively, and as such, is patentable thereover.

Applicants believe that this application, containing claims 1-10, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

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